krugle

Krugle Enterprise User's Guide

ARAGON

CONSULTING   GROUP

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Introduction

Krugle Enterprise is a search engine for software development organizations. It creates and maintains a secure, comprehensive and up-to-date index (library) of your organization's source code and related technical information. Krugle Enterprise lets you search, explore, collaborate and report across all code in the Krugle index.

This guide summarizes the features of Krugle Enterprise and provides step-by-step examples that quickly familiarize users with the capabilities of the product.

Getting Started

Krugle Enterprise client access is controlled through administrative settings in the Krugle Enterprise. If your administrator enables access control, use your LDAP credentials to Sign on to Krugle Enterprise:

1. Open a browser window.

2. Enter the network address of Krugle Enterprise in your browser address field*.

3. Enter a set of valid user credentials* when prompted.

*Contact your organization's Krugle Enterprise administrator for any assistance you require with these settings.

You will then have full access to the Krugle Search Environment:
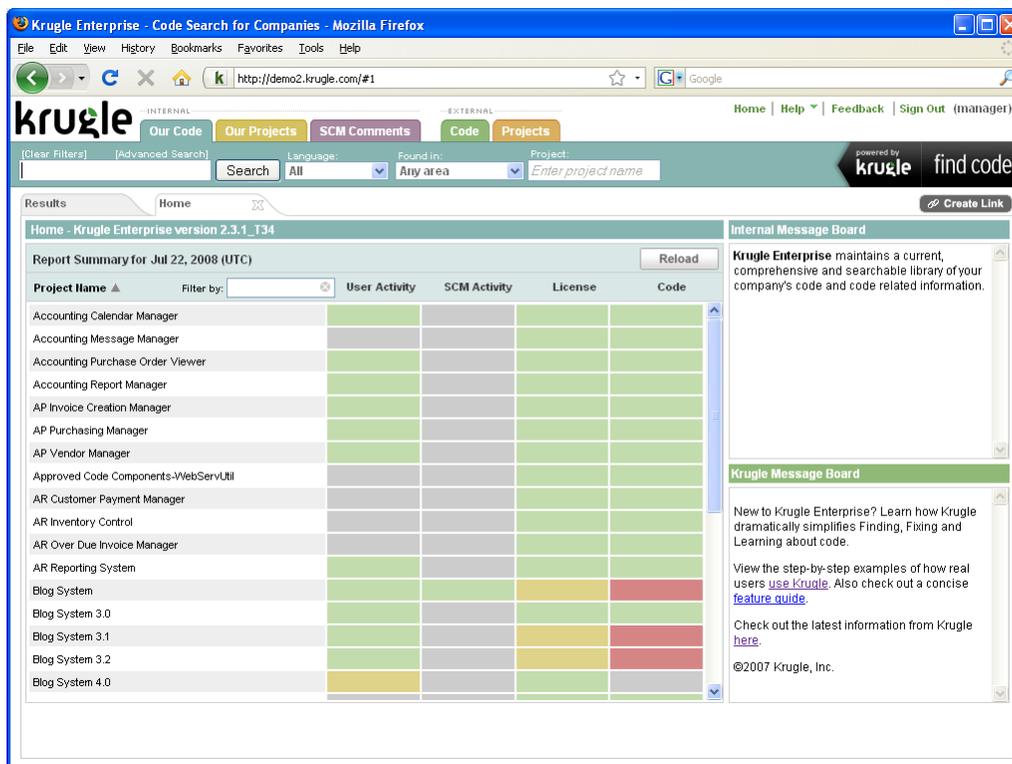
Note: You can also access Krugle Enterprise code search from your IDE or browser plug-ins. For information about downloading, installing and using Krugle plug-ins, navigate to http://www.krugle.com/community/plugins.html.

Information Channels

One of the important differences between Krugle and other search engines is the range of software development information that is searchable from within the Krugle Search Environment. Krugle search uses a tab to provide access to each channel of information. Separate search channels (tabs) are available for:

Internal Code – your organization's source code files. This is the most granular code search option and is used to locate specific source code files and code fragments.

Internal Projects – your organization's software projects. This channel uses project metadata to locate your organization's code projects and code collections based on descriptive attributes of code projects.

SCM Comments – the collective comments created by your organization's development teams with each code checkin. This channel helps pinpoint code change sets associated with specific developers, defect IDs, requirements IDs, and programming task descriptions.

Public Code – Krugle's index of internet accessible source code. Search for code examples or duplicates across over 3500 of the top Open Source and public source code projects.

Public Projects – public project metadata. This channel uses project metadata to locate public code projects and code collections based on higher level descriptive attributes of code projects.

The following example illustrates some common search capabilities and techniques.

Basic Code Search

To find all internal source code files that use the stdio.h library:

1. Select the Code tab in the INTERNAL group (this is the default selection).
2. Type stdio.h in the search box.
3. Click the Search button.

To find all internal source files that include the stdio.h library and were written using the C++ language, enter the query as above, but also select "C++" from the Language drop down to filter the search results.
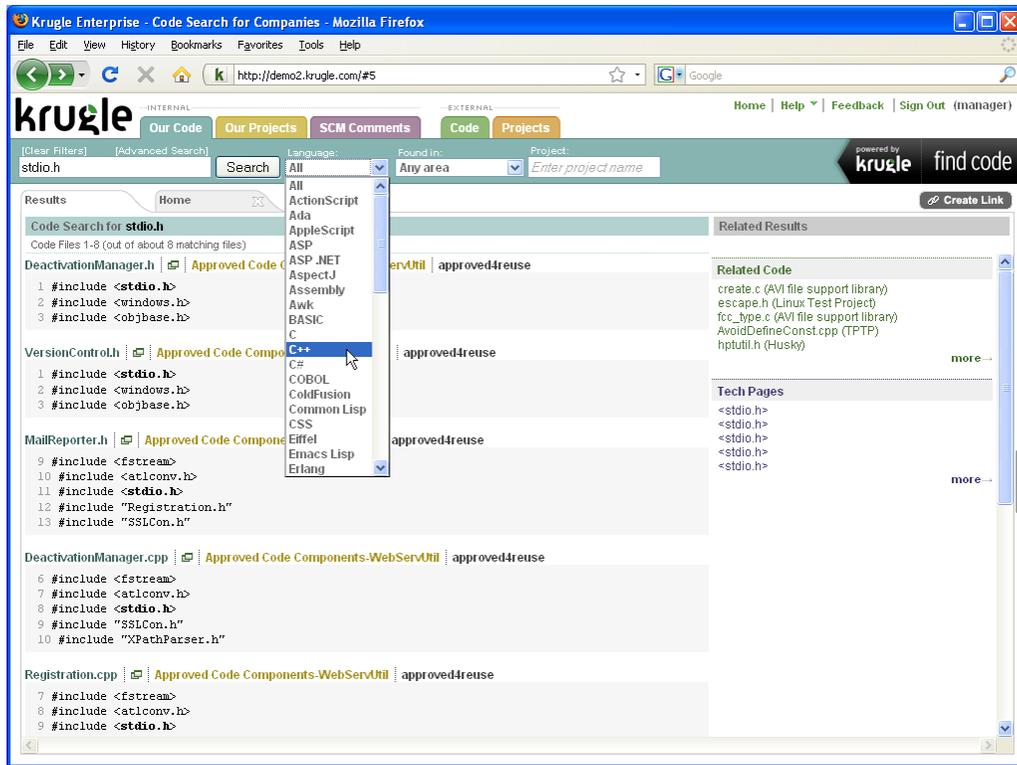
The Results Area

Some noteworthy items from a typical results page:
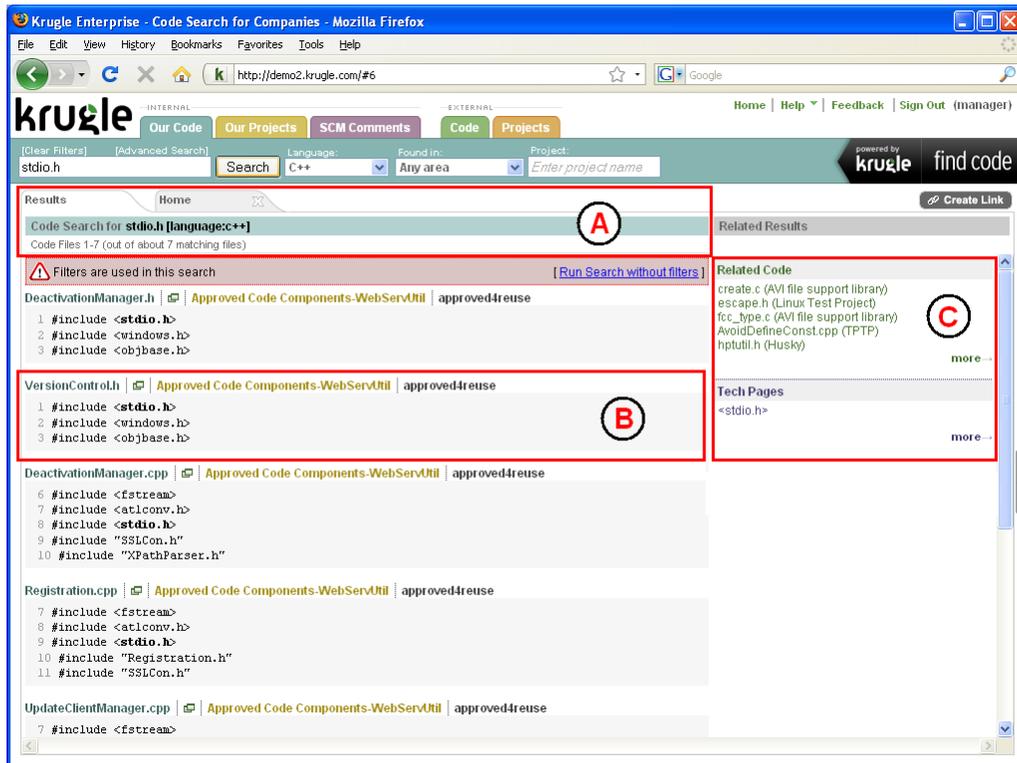
A　　　The Results tab summarizes code files that contain a match with the search term. Result summaries are displayed in groups of 10 files along with result information that includes:

- The query specification.

- The number of files matching the search term is included in the upper right portion of the results area.

- Numbered links in the upper right hand portion of the results area allow speedy navigation between pages.

B　　　Each Result summary contains links and information that guide you to any code file of interest:

- Click the **File name** to open a copy of the file (the version of the file most recently crawled and indexed by Krugle Enterprise) directly in the Krugle Search Environment.

- Click the ⊑ icon to open a copy of the file in a new browser window, outside of Krugle Search Environment.

- Click the **Project name** for descriptive information and statistics about the project that contains the file.

- Click **Show Clones** to generate a list of files that are functionally similar to this file.

- Numbered lines from the file that surround the matching term(s) are shown directly beneath the file metadata described above.

C　　　Related Results contain descriptive, one-line summaries from search "hits" in other channels; these hits are grouped by channel.

- Click the Related Result **listing** to view the file or data record of interest.

When you click a code file name, that file will be opened in a new results tab:

File Display
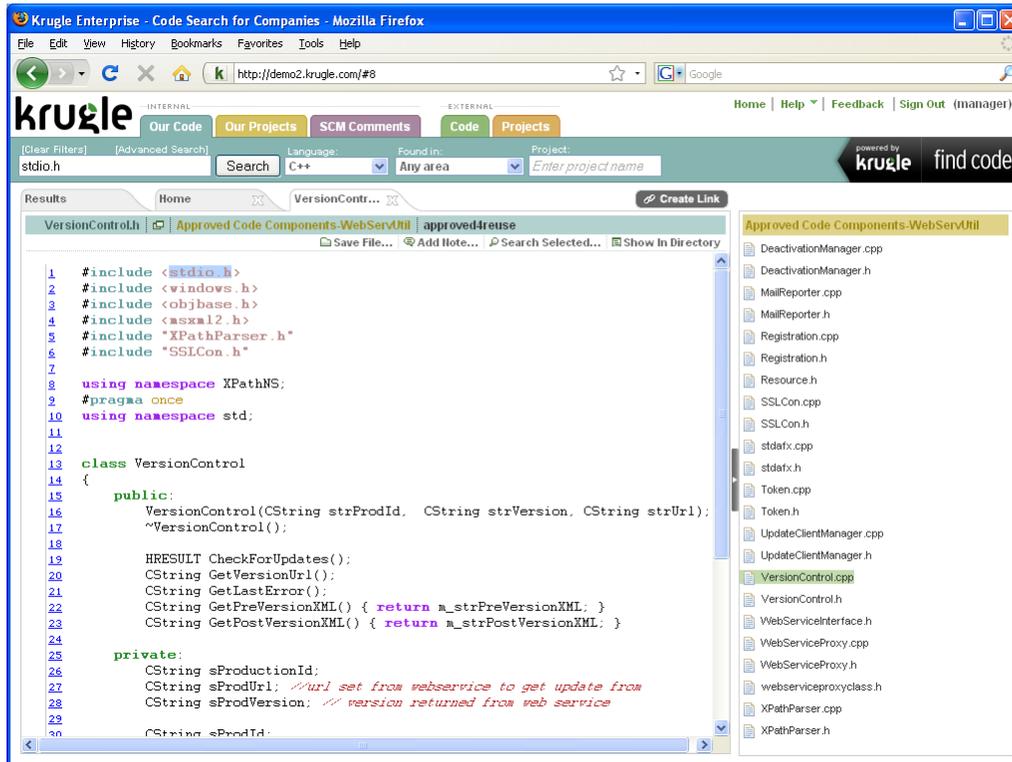
Some things worth noting about the code file page:

- Terms that match the search criteria are highlighted in the file display.

- Click ⬜ to save the displayed file to your local computer.

- Select any text string from a single line within the file and then click 🔍 to find occurrences of the string in other files. The resulting "Search on Selected Text" dialog will allow you to narrow your search to comments, function definitions, class definitions, etc – as you see fit.

NOTE: See the section "Code Snippet Search" below for advanced search of selected text.
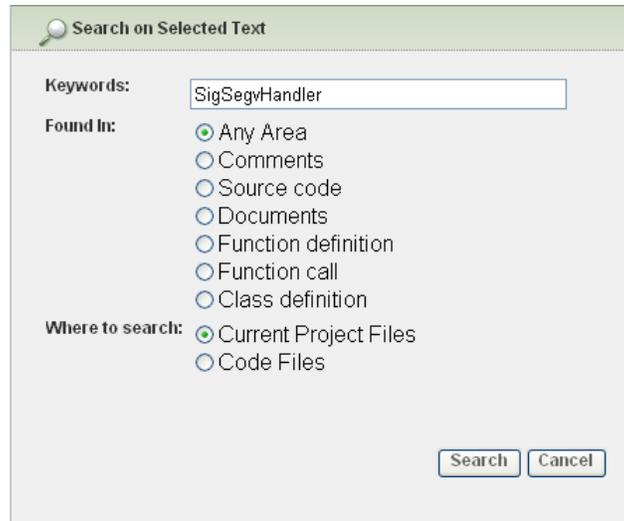
Note that additional result tabs are created as you open new files. Switch between files by clicking the corresponding tab.

Click the [🔗 Create Link] button to create a permanent link to the files currently open.

Search Filtering

Search options can be accessed through dropdown choices that are visible when you choose a particular search channel and command line query qualifiers. A query qualifier summary is available by choosing "Feature Reference" from the "Help" menu in the Krugle Search Environment. The summary is also available at http://www.krugle.org/help/feature_presentation.html.

Krugle Enterprise search features allow search results that are:

- Matched to exact or broad terms.

- Filtered by programming language(s).

- Filtered by storage location and/or file type.

- Filtered by project name.

- Filtered by license type.

- Filtered by code area: comments, function / class definition, function calls, related documentation files, etc.

- Generated from combinations of filters listed above.

- Incorporate camel case (e.g. NameHere) and underscore code tokenizing – to make searches with commonly used naming conventions more effective.

Code Exploration

Krugle Enterprise is commonly used for code exploration. Unlike search included with desktop or workgroup development tools, Krugle makes it easy to search code in archives and repositories across your organization - information that you don't typically have access to.

With Krugle, search on class or function names to see those how components have been used in other projects across the organization. You can also use "Search Selected" - on any selected text in a code file – to trace dependencies between code modules and understand how code components work together.

You can also browse any code file in a project using the directory tree. The directory tree - displayed to the right of the code file - shows all files associated with the project that contains the currently displayed file.
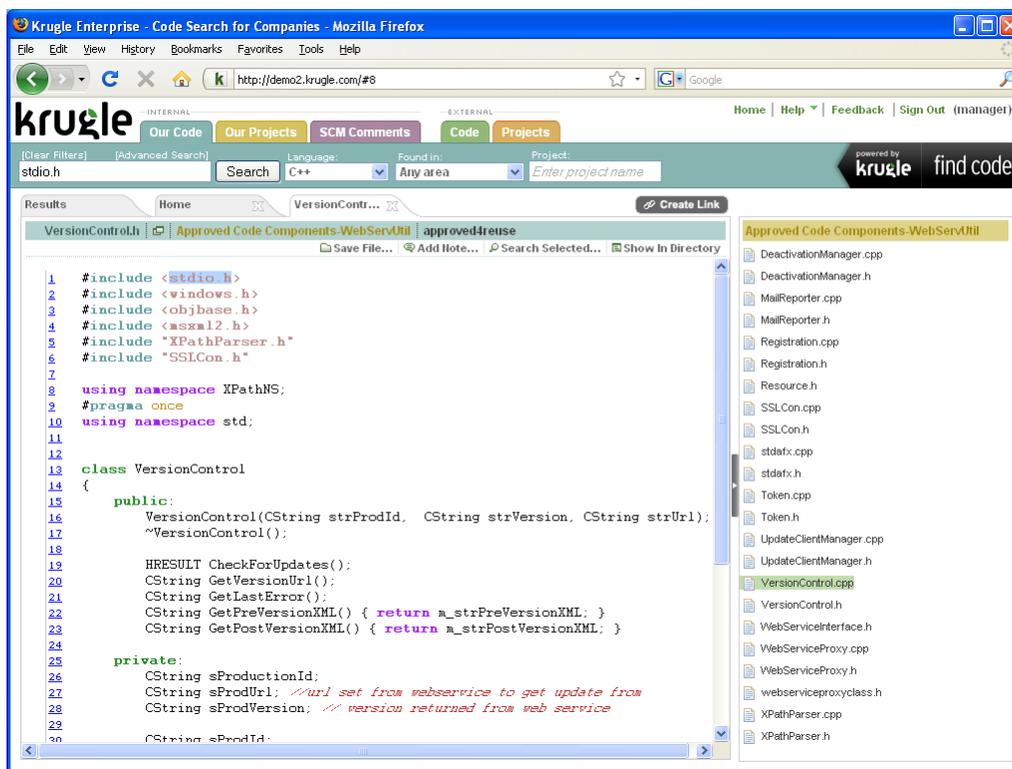
Click the twist down indicators   to reveal directories and files in the project hierarchy. Click the document icon   to view the associated file in a file tab.

Code Snippet Search

Krugle Enterprise supports searching for multi-line sections of code – "snippets". There are two ways to access this functionality:

- Click the [Advanced Search] link from the search bar.

- Select multiple lines from a code file and click "Search Selected…"

The resulting dialog allows you to edit the search text if required, to limit the scope of projects within which to search, and to set the precision of the search. The precision of search can be controlled by moving the slider between "Exact" – where the search string must match exactly – and "Fuzzy" – where similar snippets will result in a search hit. As the slider is moved closer to "Fuzzy", the search constraints are increasingly relaxed.

After running a snippet search, the results page shows the snippet being searched for, and lists the files that contain matching text, ranked in order of precision. Other results page features, such as project names and the "Show Clones" function as per a regular keyword search. Clicking the [Modify Search] link returns to the code snippet dialog which enables convenient modification of search parameters, such as search precision.

Saving and Sharing

There are several ways to save and share results in Krugle Enterprise:

- Command/Ctrl click the result tab to save a URL to the last executed query.

- Command/Ctrl click any file tab to save a permanent URL to the (individual) file displayed in that tab.

- Command/Ctrl click any line number within a file in a tab to save a permanent URL to that location within the file.

- Click the **Create Link** button to create a permanent URL to all files currently open.

Any of these URLs can be saved as browser bookmarks, or copy and pasted into databases (i.e. issue tracking systems) or emails (to share the information with colleagues, etc.)

Monitoring

Click the "Home" tab (or the **Home** text link in the upper right navigation area) to review activity and code reports by project.
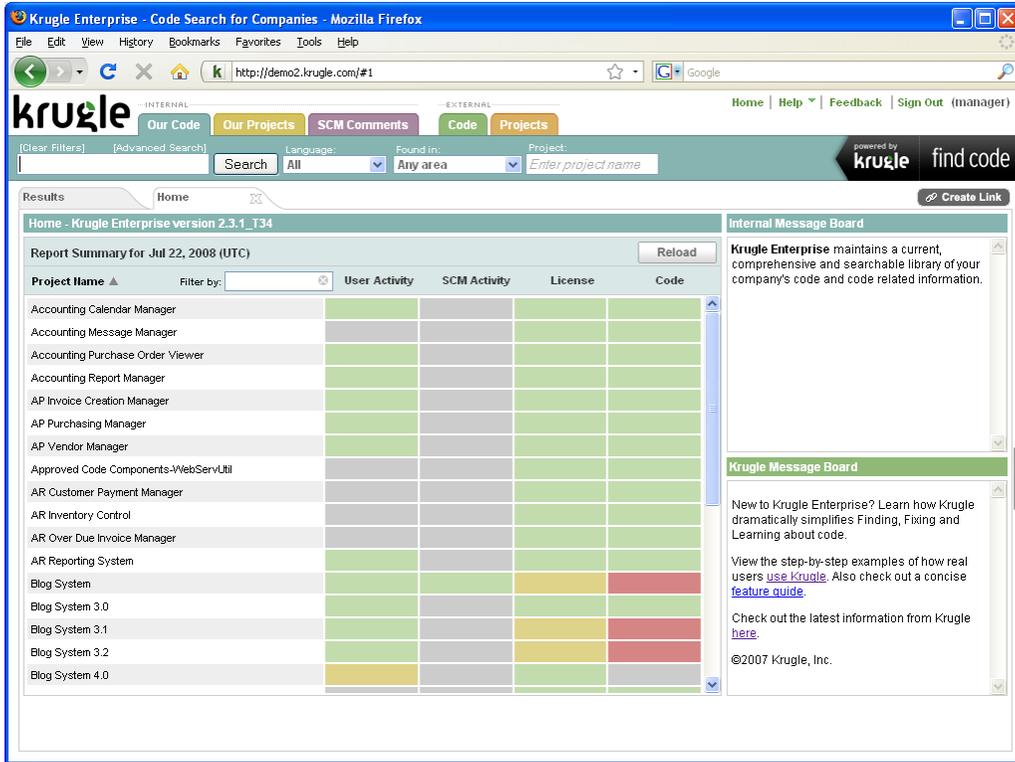
The "Filter by" box allows the set of projects to be filtered according to the entered string (case insensitive). This is a convenient way to limit the project display when dealing with a large number of projects. Click the ⊗ icon to clear the filter settings.
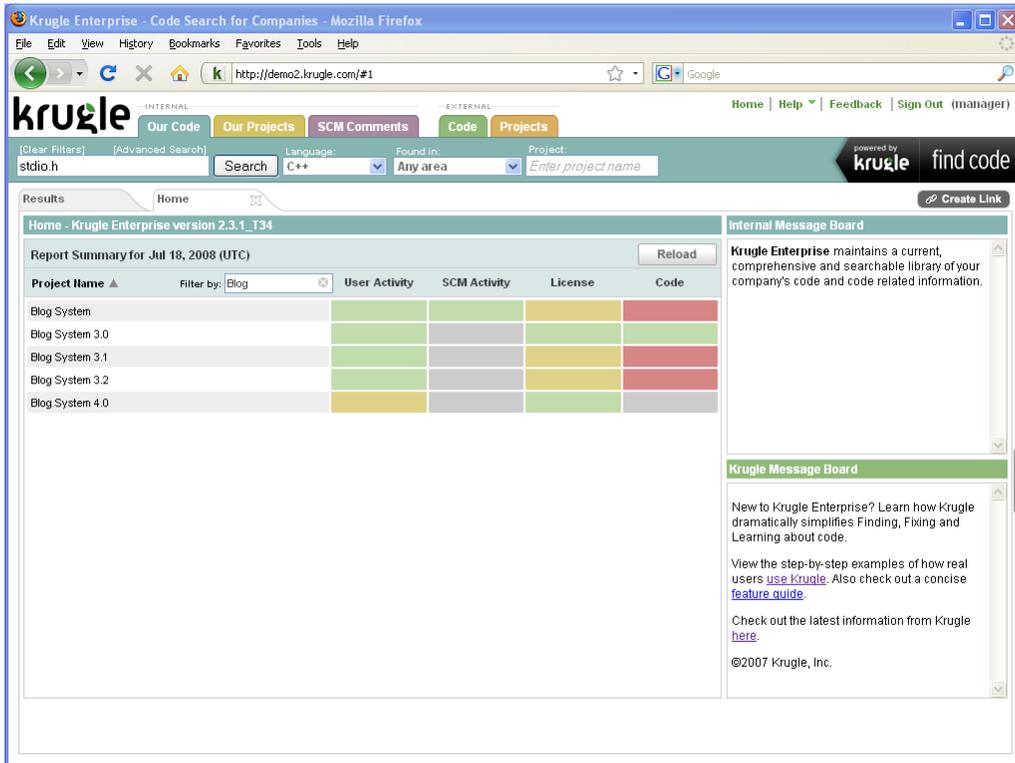
The default grid in the Home tab summarizes project activity (rows) and activity type (columns). The grid color indicates the relative level of activity for a particular project. Green indicates a normal or average level of activity; yellow shows elevated activity; red indicates the highest warning or level of activity; gray indicates no activity.

The heatmap activity types are explained below:

User Activity – trended daily summaries of user activities (searches, file views, downloads, etc) in Krugle Enterprise

SCM Activity – trended daily summaries of SCM file additions, edits and deletions. Click bar chart elements to view change set lists for a particular day (see the screenshot below).

License – indicates if code with specified OSI license type(s) has been added to a project.

Code – reports on lines of code and number of files by programming language.
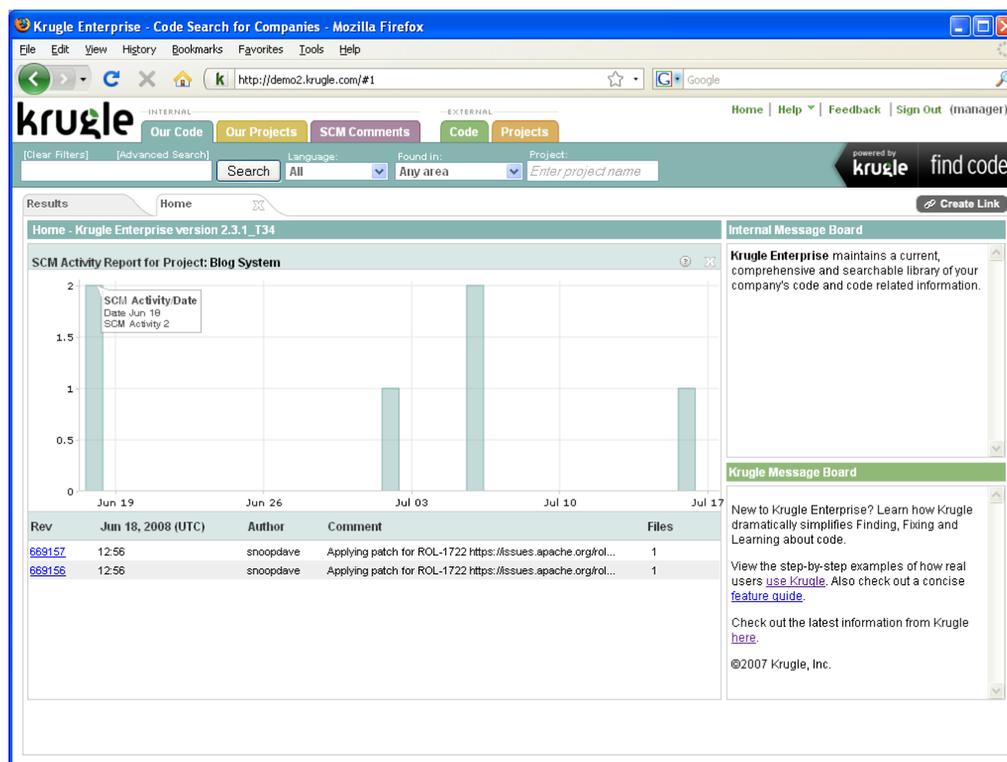
Automation

Krugle Enterprise includes facilities to assist with automation. The first is a RESTful API which is the same API used by the Krugle Search Environment. Contact Krugle for more information about this API, including customization services.

Krugle Enterprise also publishes an Atom 1.0 feed of the files changed in the latest snapshot. The top-level feed document can be viewed in a web browser by going to the "/feeds/files" URL under the Krugle Enterprise appliance, e.g.: http://my.krugle.appliance.com/feeds/files. The same user access controls are

in place here as for the rest of the Krugle Search Environment. This yields an XML document which can be read by an Atom feed reader and describes a set of collections, equivalent to Krugle projects, in a workspace:

```xml
<?xml version="1.0" encoding="utf-8"?>
<app:service xmlns:app="http://www.w3.org/2007/app" xmlns:atom="http://www.w3.org/2005/Atom">
    <app:workspace>
        <atom:title>Krugle file data feed for server krugle-enterprise-currentrelease</atom:title>

            <app:collection href="http://demo2.krugle.com/feeds/files/blogsystem/20080708T193711Z">
                <atom:title>Krugle file data feed for project "Blog System"</atom:title>
            </app:collection>

            <app:collection href="http://demo2.krugle.com/feeds/files/blogsystem40/20080805T194328Z">
                <atom:title>Krugle file data feed for project "Blog System 4.0"</atom:title>
            </app:collection>

            <app:collection href="http://demo2.krugle.com/feeds/files/blogsystem30/20080708T193631Z">
                <atom:title>Krugle file data feed for project "Blog System 3.0"</atom:title>
            </app:collection>

            <app:collection href="http://demo2.krugle.com/feeds/files/blogsystem31/20080708T193631Z">
                <atom:title>Krugle file data feed for project "Blog System 3.1"</atom:title>
            </app:collection>

            <app:collection href="http://demo2.krugle.com/feeds/files/blogsystem32/20080708T193631Z">
                <atom:title>Krugle file data feed for project "Blog System 3.2"</atom:title>
            </app:collection>
```

Each collection specifies a URL which may be read by an Atom feed reader to retrieve the changes in the project up to the given timestamp. The feed includes added/deleted/updated information, as well as metadata about the files.

```xml
<?xml version="1.0" encoding="utf-8"?>
<atom:feed xmlns:atom="http://www.w3.org/2005/Atom" xmlns:fh="http://purl.org/syndication/history/1.0">
  <atom:title>Krugle file data feed for project "Curl WSDK"</atom:title>
  <atom:author>
    <atom:name>Krugle Enterprise server krugle-enterprise-currentrelease</atom:name>
    <atom:uri>http://demo2.krugle.com</atom:uri>
  </atom:author>

  <atom:link rel="current" href="http://demo2.krugle.com/feeds/files/curl_wsdk/20090501T181012Z"/>
  <atom:link rel="self" href="http://demo2.krugle.com/feeds/files/curl_wsdk/20090501T181012Z"/>
  <atom:link rel="prev-archive" href="http://demo2.krugle.com/feeds/files/curl_wsdk/20090501T181012Z/3"/>
  <atom:updated>2009-05-03 18:17:17Z</atom:updated>

  <atom:id>urn:krugle-feed:krugle-enterprise-currentrelease/files/curl_wsdk/20090501T181012Z</atom:id>

  <atom:entry>
    <atom:title>Change 399 in Curl WSDK - parse-schema.scurl</atom:title>
    <atom:id>urn:krugle-file:/files/curl_wsdk/svn_curl-wsdk.svn.sourceforge.net_443/trunk/code/wsdl/parse-schema.scurl</atom:id>
    <atom:link rel="self" href="http://demo2.krugle.com/feeds/files/curl_wsdk/20090501T181012Z/4/100"/>
    <atom:updated>2009-05-03 18:17:17Z</atom:updated>
    <atom:content type="application/xml">
      <krugleFileFeed action="UPDATED">
        <uri>curl_wsdk/svn_curl-wsdk.svn.sourceforge.net_443/trunk/code/wsdl/parse-schema.scurl</uri>
        <md5>522dc9dd9985e3d6880c7d73db8b9a6a</md5>
        <codeSignature>522dc9dd9985e3d6880c7d73db8b9a6a</codeSignature>
      </krugleFileFeed>
    </atom:content>
  </atom:entry>
  <atom:entry>
    <atom:title>Change 398 in Curl WSDK - GoogleSearch.scurl</atom:title>
```

This information can then be used to initiate processing of files in the snapshot by external applications.